ESC2000 G2

Configuration Guide

E7581

First Edition
July 2012

Copyright © 2012 ASUSTeK COMPUTER INC. All Rights Reserved.

No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, except documentation kept by the purchaser for backup purposes, without the express written permission of ASUSTeK COMPUTER INC. (“ASUS”).

ASUS provides this manual “as is” without warranty of any kind, either express or implied, including but not limited to the implied warranties or conditions of merchantability or fitness for a particular purpose. In no event shall ASUS, its directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of use or data, interruption of business and the like), even if ASUS has been advised of the possibility of such damages arising from any defect or error in this manual or product.

Specifications and information contained in this manual ae furnished for informational use only, and are subject to change at any time without notice, and should not be construed as a commitment by ASUS. ASUS assumes no responsibility or liability for any errors or inaccuracies that may appear in this manual, including the products and software described in it.

Product warranty or service will not be extended if: (1) the product is repaired, modified or altered, unless such repair, modification of alteration is authorized in writing by ASUS; or (2) the serial number of the product is defaced or missing.

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners’ benefit, without intent to infringe.

Contents

Revision history III
Safety information IV

Chapter 1: Product introduction

1.1 Key features 1-2
1.2 System overview 1-3
1.3 Front panel features 1-4
1.4 Rear panel features 1-5
1.5 System specifications 1-6

Chapter 2: Components

2.1 Upgrading CPU and CPU heatsink 2-2
2.2 Upgrading system memory 2-3
2.3 Upgrading hard disk drives 2-6
2.4 Replacing hard disk drive cage 2-7
2.5 Installing ASUS PIKE SAS RAID card 2-8
2.6 Upgrading 5.25-in drives 2-9
2.7 Installing ASUS Server Management Board 2-10
2.8 Upgrading graphics card 2-11
2.9 Installing MIO Audio card 2-12
2.10 Upgrading front system fan 2-13
2.11 Rackmount rail kit 2-14
2.12 OS support list 2-15

Revision history

Revision	Revision history	Date
V1	First release of ESC2000 G2 configuration guide	July 2012

Safety information

Electrical Safety

- Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.
- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing any additional devices to or from the system, contact a qualified service technician or your dealer. Ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you service.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your dealer.

Operation Safety

- Servicing of this product or units is to be performed by trained service personnel only.
- Before operating the server, carefully read all the manuals included with the server package.
- Before using the server, make sure all cables are correctly connected and the power cables are not damaged. If any damage is detected, contact your dealer as soon as possible.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Place the server on a stable surface.

This product is equipped with a three-wire power cable and plug for the user's safety. Use the power cable with a properly grounded electrical outlet to avoid electrical shock.

Lithium-Ion Battery Warning

CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

CD-ROM Drive Safety Warning

CLASS 1 LASER PRODUCT

Heavy System

CAUTION! This server system is heavy. Ask for assistance when moving or carrying the system.

Chapter 1

This chapter describes the key features of ESC2000 G2. It includes the product overview and general specifications.

Product introduction

1.1 Key features

The ASUS ESC2000 G2 is a new 2-way workstation based on the Intel® Xeon ® E5-2600 processor platform, featuring three 5.25" media bays, four hot-swap 3.5" SATA hard drive cages, 80PLUS Gold 1350W power supply, and seven PCI Express 3.0 x16 expansion slots. It delivers unparalleled computing performance, advanced and complete I/O integration, and high energy efficiency, all ideal for professional graphics, financial modeling, engineering, and the sciences.

Quad-GPU support unleashes more computing power

With four Tesla™ C-series GPUs fully supporting true PCI Express 3.0 x16 bandwidth, the ESC2000 G2 delivers up to 1.3Tflops parallel computing performance to handle massive processing tasks.

Dual Intel® Ethernet for fast networking

Twin Ethernet controllers support double the network bandwidth, alongside teaming and fault tolerance functions to offer reliable and extra-fast connectivity.

ASUS SSD Caching

The ESC2000 G2 boosts system performance using an installed SSD as a cache for frequent tasks, allowing you to access data with increased ease and speed. Power up productivity and reduce waits while data transfers!

DTS® Ultra PCII support

A brand-new friendly interface brings more functions to users, including symmetry, audio restoration, and enhancement. DTS® symmetry monitors and balances level differences between all digital audio formats, while audio restoration reconstructs percussion and transient sounds from compressed sound sources to restore lost punch and clarity.

Maximum power supply with DIGI+ for the most demanding workloads

The 1350W 80PLUS Gold power supply unit cuts down system power loss and improves energy efficiency, saving users money on operating costs. With exclusive ASUS DIGI+ Power, the ESC2000 G2 utilizes precision power adjustments on the processor and memory modules, providing higher system stability.

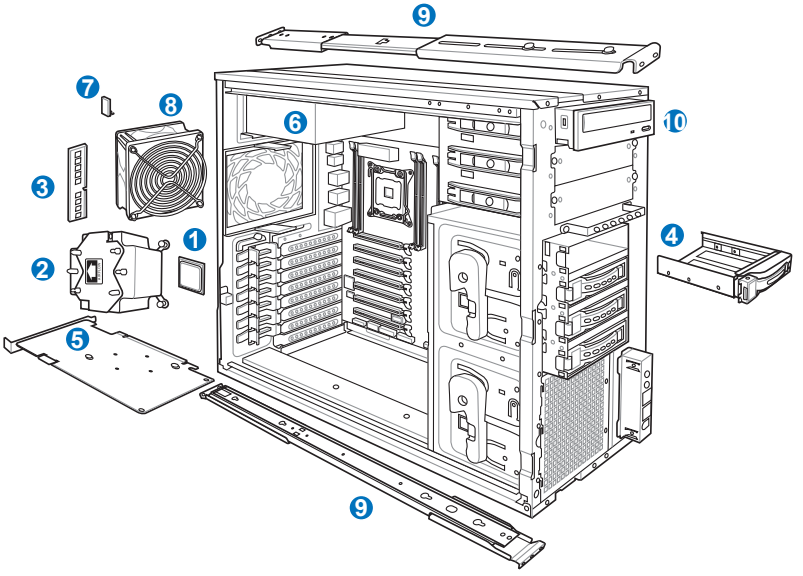
ASMB6-iKVM upgrade kit for easy troubleshooting

The ASMB6-iKVM enables dashboard system health monitoring, remote power on/off and control, virtual media over LAN, and management LAN fail-over support. In addition, the ASMB6 function uses BIOS-level access, so even if the server operating system is down or offline, the KVM module can still provide round-the-clock remote monitoring and diagnosis through a user-friendly web-based graphical interface with support for all major browsers.

Cutting-edge architecture

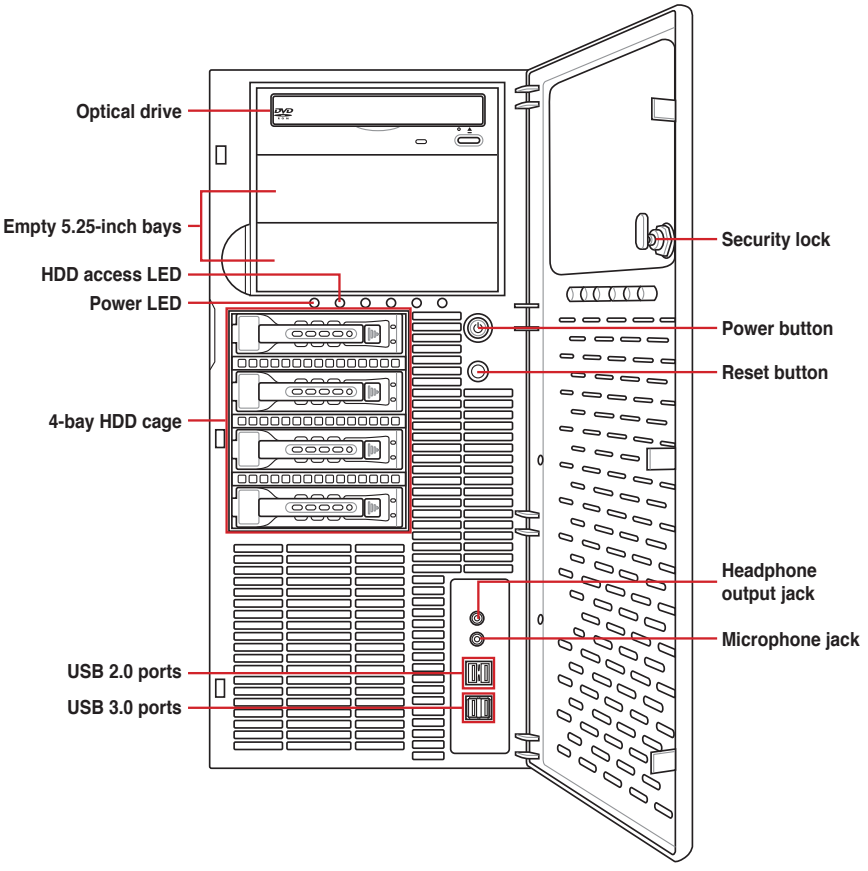
The ESC2000 G2 supports new Intel® Sandy Bridge E5-2600 processors. With eight DIMM sockets and four-channel DDR3 1600, it can accommodate up to 256GB in memory capacity, providing high computing capabilities. Multiple PCI Express 3.0 x16 lanes are perfect for systems that require high I/O connectivity and bandwidth, enabling support for more compatible devices.

1.2 System overview

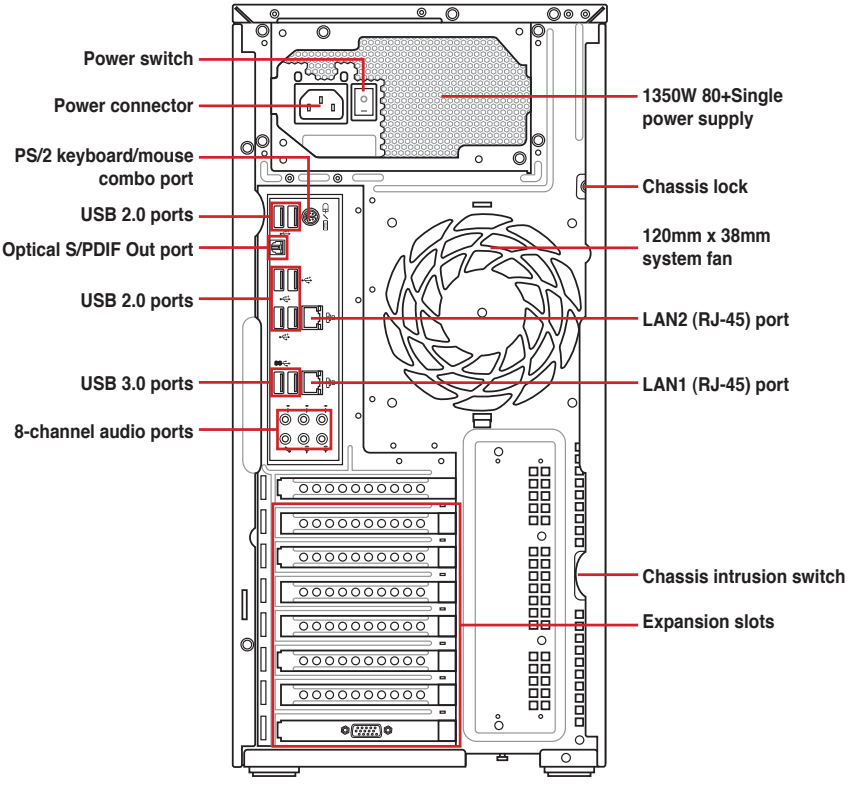


Items	
1.	Central processing unit (CPU)
2.	CPU heatsink and fan
3.	System memory
4.	Hard disk drives
5.	Graphics card
6.	Single power supply
7.	ASUS Server management board (optional)
8.	System fan
9.	Rackmount rail kit (optional)
10.	Optical drive (optional)

1.3 Front panel features



1.4 Rear panel features



- The ports for the PS/2 keyboard, PS/2 mouse, serial port, USB, VGA, and Gigabit LAN do not appear on the rear panel if motherboard is not present.

1.5 System specifications

The ASUS ESC2000 G2 is a workstation featuring the ASUS Z9PE-D8 WS motherboard. The workstation supports Intel® LGA2011 Xeon® E5-2600 processor family, plus other latest technologies through the chipsets onboard.

Model Name		ESC2000 G2
Processor / System Bus		2 x Socket LGA2011
		Intel® Xeon® processor E5-2600 processor family (TDP=150W)
		QPI 6.4/7.2/8.0GT/s
Core Logic		Intel® C602 Chipset
Memory	Total Slots	8 (4-channel per CPU, 4 DIMM per CPU)
	Capacity	Maximum up to 64GB (UDIMM) Maximum up to 256GB (RDIMM) Maximum up to 256GB (LRDIMM)
	Memory Type	DDR3 800/1066/1333/1600 RDIMM DDR31066/1333/1600/1866(O.C.)/2000(O.C.)/ 2133 (O.C.) ECC UDIMM/Non-ECC UDIMM DDR3 1066/1333 LRDIMM ***Refer to www.asus.com for detailed memory AVL CPU support list.**
	Memory Size	1GB, 2GB, 4GB, 8GB, 16GB and 32GB (RDIMM) 1GB, 2GB, 4GB and 8GB (UDIMM) 8GB, 16GB and 32GB (LRDIMM)
Expansion Slots	Total PCI/PCI-X/ PCI-E Slots	7
	Slot Type	4 x PCI-E 3.0 x16 slots (dual at x16/x16, quad at x8/x8/x8/x8) 2 x PCI-E 3.0 x16 slots (at x16 mode) 1 x PCI-E 3.0 x16 slot (at x8 mode)
Storage	SATA Controller	**Intel® C602-A:** **AHCI** - 4 x SATA 3.0Gb/s ports - 2 x SATA 6.0Gb/s ports - Intel Rapid Storage Technology enterprise (supports RAID 0, 1, 5 and 10 for Windows® only) - LSI® MegaRAID (supports RAID 0, 1, and 10 for Linux/Windows®) **SCU** - 4 x SATA 3.0Gb/s ports - Intel Rapid Storage Technology enterprise (for Windows® only) supports software RAID 0, 1, 5 and 10 for all SATA ports **Marvell 88E9230 SATA controller:** - 4 x SATA 6.0Gb/s ports (supports software RAID 0, 1, and 10 for Windows® only)
Networking	LAN	2 x Intel® 82574L Gigabit LAN controller

(continued on the next page)

HDD Bays		4 x Hot-swap 3.5” HDD Bays
Graphic cards		ASpeed AST2300 16MB
Auxiliary Storage FDD / CD / DVD		3 x 5.25” media bays (Optional: No ODD/DVD-RM)* ***DVD-RW default for North America**
Front Panel I/O		2 x USB 3.0 ports (blue) 2 x USB 2.0 ports 1 x Line In 1 x Line Out
Rear Panel I/O		1 x PS/2 Keyboard/Mouse combo port 1 x S/PDIF Out (Optical) 2 x USB 3.0/2.0 ports (blue) 6 x USB 2.0/1.1 ports 2 x RJ45 ports (Intel® LAN) 8-channel Audio I/O
OS Support		Windows® Server 2008 R2 Windows® Server 2008 R2 Enterprise Windows® Server 2008 Enterprise 32/64-bit Windows® 7 Ultimate Service Pack 1 32/64-bit RedHat® Enterprise Linux Desktop WS 6.0 32/64-bit RedHat® Enterprise Linux AS5.7/6.2 32/64-bit SuSE® Linux Enterprise Desktop 11.1 32/64-bit SuSE® Linux Enterprise Server 11.2 32/64-bit CentOS 5.7/6.1 32/64-bit VMWare ESX4.1/ESXi4.1
Management Solution	**Software**	ASWM Enterprise
	Out-of-Band Remote Management	optional 1 x ASMB6-iKVM-over-internet
Dimension (HH x WW x DD)		445mm x 217.5mm x 545mm
Net Weight Kg (CPU, DRAM & HDD not included)		17.2 Kg
Power Supply		1350W (80+) Gold Single Power Supply
Power Rating		Input: 115-240Vac, 14.5-6.5A, 50-60Hz, Class I
Environment		Operating temperature: 10°C–35°C Non-operating temperature: -40°C–70°C Non-operating humidity: 20%–90% (Non-condensing)

***Specifications are subject to change without notice.**

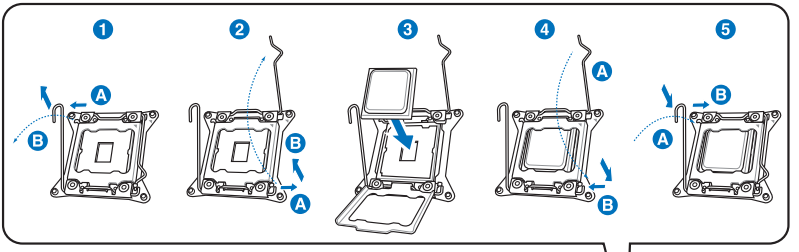
Chapter 2

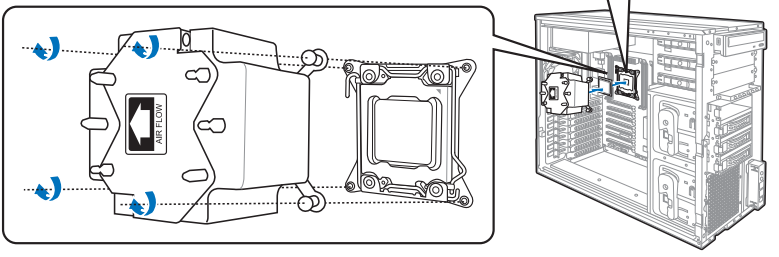
This chapter lists the key components and optional accessories for the server system.

Components

2.1 Upgrading CPU and CPU heatsink

The motherboard comes with a surface mount LGA2011 socket designed for the Intel® Xeon® E5-2600 series processors.





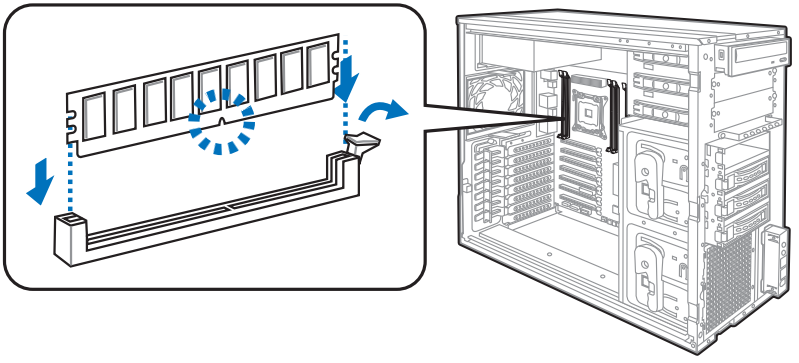
We recommend to install CPUs with the same frequency.

Please note the order in opening/ closing the double latch. Follow the instructions printed on the metal sealing hatch or the illustrations shown below in this manual. The plastic cap will pop up automatically once the CPU is in place and the hatch properly sealed down.

Order P/N	Description
N/A	E5-2687W 3.1G(8C/20M/150W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2690 2.9G(8C/20M/135W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2680 2.7G(8C/20M/130W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2670 2.6G(8C/20M/115W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2667 2.9G(6C/15M/130W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2665 2.4G(8C/20M/115W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2660 2.2G(8C/20M/95W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2650 2.0G(8C/20M/95W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2643 3.3G(4C/10M/130W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2640 2.5G(6C/15M/95W/DDR3 1600/HT/7.20 GT) with Heatsink
N/A	E5-2637 3.0G(2C/5M/80W/DDR3 1600/HT/8.00 GT) with Heatsink
N/A	E5-2630 2.3G(6C/15M/95W/DDR3 1600/HT/7.20 GT) with Heatsink
N/A	E5-2620 2.0G(6C/15M/95W/DDR3 1600/HT/7.20 GT) with Heatsink

2.2 Upgrading system memory

The motherboard comes with eight (four DIMM per CPU) Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.



You may install 1GB, 2GB, 4GB, 8GB, 16GB and 32GB* RDIMMs or 1GB, 2GB, 4GB and 8GB* with ECC/Non-ECC UDIMMs or 8GB, 16GB and 32GB* LR-DIMMs into the DIMM sockets using the memory configurations in this section.

Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.

1 CPU Configuration (must on CPU1)				
	DIMM_A1	DIMM_B1	DIMM_C1	DIMM_D1
1 DIMMs	X			
2 DIMMs	X	X		
4 DIMMs	X	X	X	X

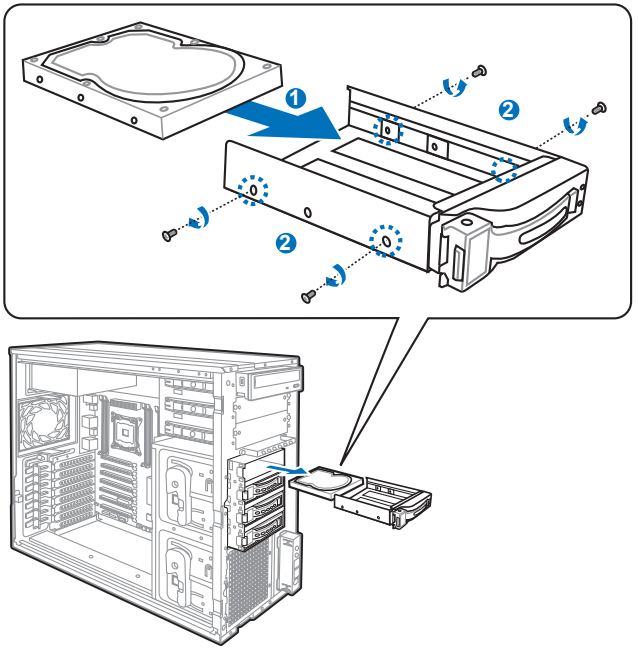
2 CPU Configuration				
	DIMM_A1	DIMM_B1	DIMM_C1	DIMM_D1
1 DIMMs	X			
2 DIMMs	X			
4 DIMMs	X	X		
8 DIMMs	X	X	X	X

2 CPU Configuration				
	DIMM_E1	DIMM_F1	DIMM_G1	DIMM_H1
1 DIMMs				
2 DIMMs	X			
4 DIMMs	X	X		
8 DIMMs	X	X	X	X

Order P/N	Description
90-S000I0600T	DDR3 1600 ECC REG 4G 240P SINGLE PACK
90-S000I0610T	DDR3 1600 ECC REG 8G 240P SINGLE PACK
90-S000I0620T	DDR3 1600 ECC REG 16G 240P SINGLE PACK
90-S000I0630T	DDR3 1600 ECC UNB 2G 240P SINGLE PACK
90-S000I0640T	DDR3 1600 ECC UNB 4G 240P SINGLE PACK
90-S000I0650T	DDR3 1600 ECC UNB 8G 240P SINGLE PACK

2.3 Upgrading hard disk drives

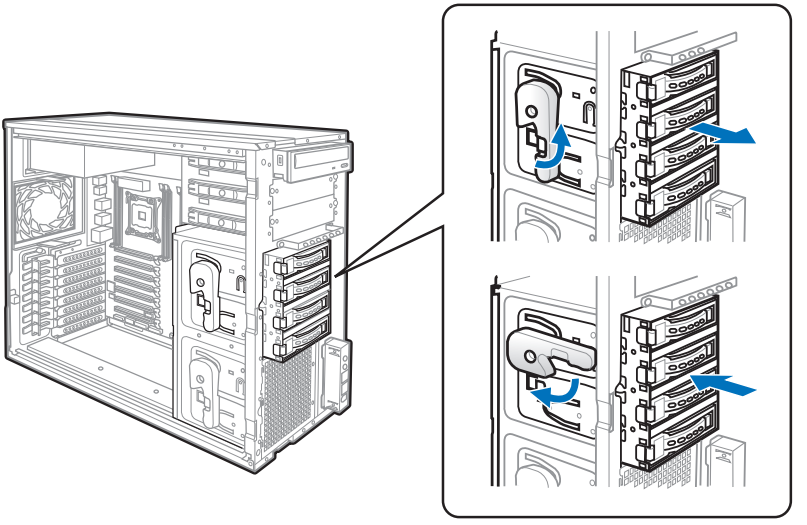
The system supports four hot-swap SATAII/SAS hard disk drives.



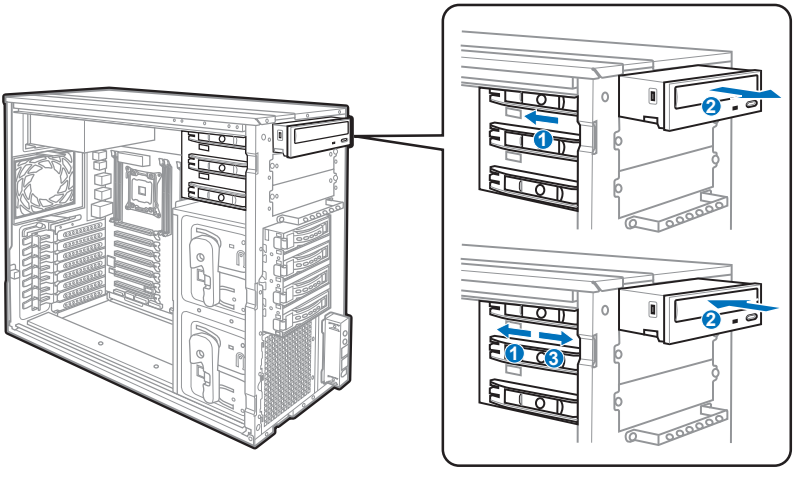
We recommend that you install identical drives of the same model and capacity for RAID configuration.

Order P/N	Description
90-S000H64R0T	300GB 6G SAS15Krpm with HDD Tray (Single Pack)
90-S000H64S0T	450GB 6G SAS15Krpm with HDD Tray (Single Pack)
90-S000H64T0T	600GB 6G SAS15Krpm with HDD Tray (Single Pack)
90-S000H65D1T	500GB SATA3 6Gb 7200 rpm with HDD Tray (Single Pack)
90-S000H65B1T	1TB SATA3 6Gb 7200 rpm with HDD Tray (Single Pack)
90-S000H65V0T	500GB SATA3 7200 rpm with HDD Tray (Single Pack)
90-S000H65U0T	1TB SATA3 7200 rpm with HDD Tray (Single Pack)
90-S000H65T0T	2TB SATA3 7200 rpm with HDD Tray (Single Pack)
90-S000H65E2T	3TB SATA3 7200 rpm with HDD Tray (Single Pack)
90-S000H65D0T	500GB SATA3 6Gb 7200 rpm (Single Pack)
90-S000H65B0T	1TB SATA3 6Gb 7200 rpm (Single Pack)
90-S000H65V1T	500GB SATA3 7200 rpm (Single Pack)
90-S000H65U1T	1TB SATA3 7200 rpm (Single Pack)
90-S000H65T1T	2TB SATA3 7200 rpm (Single Pack)
90-S000H65E3T	3TB SATA3 7200 rpm (Single Pack)

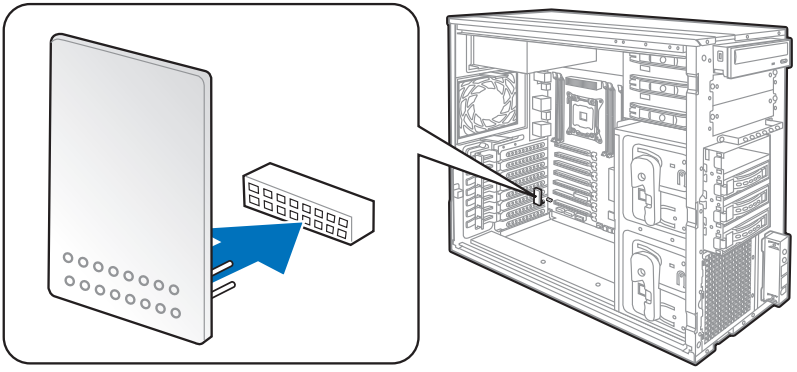
2.4 Replacing hard disk drive cage



2.5 Upgrading 5.25-in drives



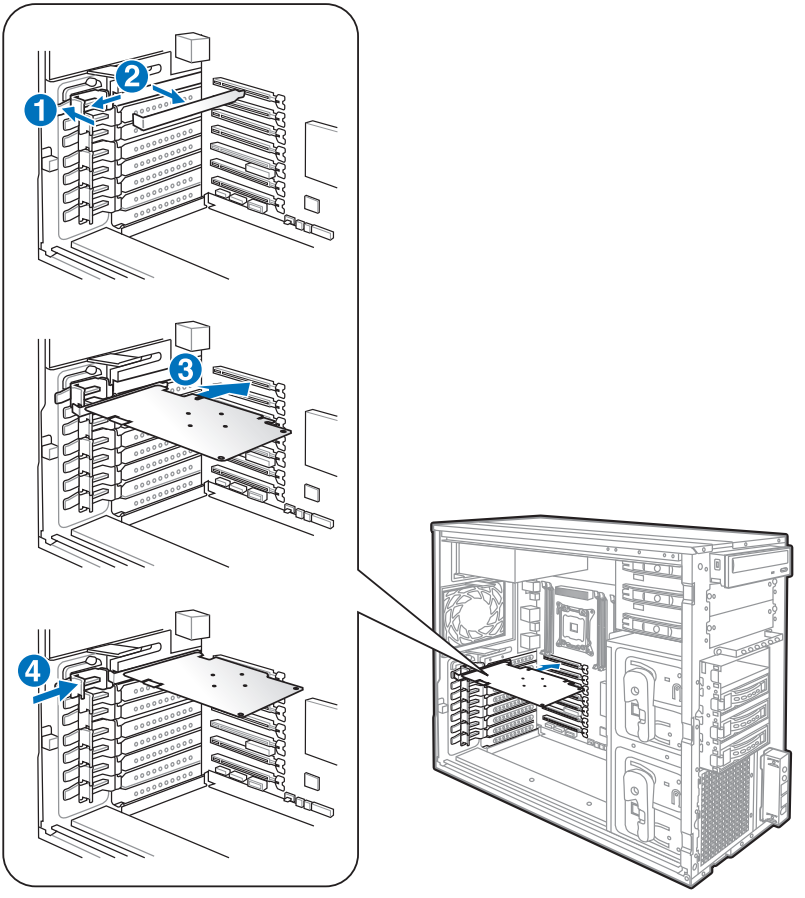
2.6 Installing ASUS Server Management Board



ASUS Server Management Board is an Intelligent Platform Management Interface (IPMI) 2.0-compliant board that allows users to monitor, control and manage a remote server from the local or central server in local area network (LAN).

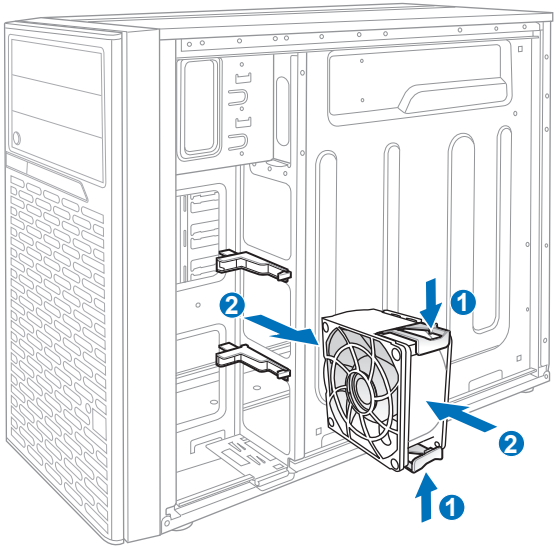
Order P/N	Description
90-C1SF00-00UAY0YZ	ASMB6-iKVM

2.7 Upgrading graphics card

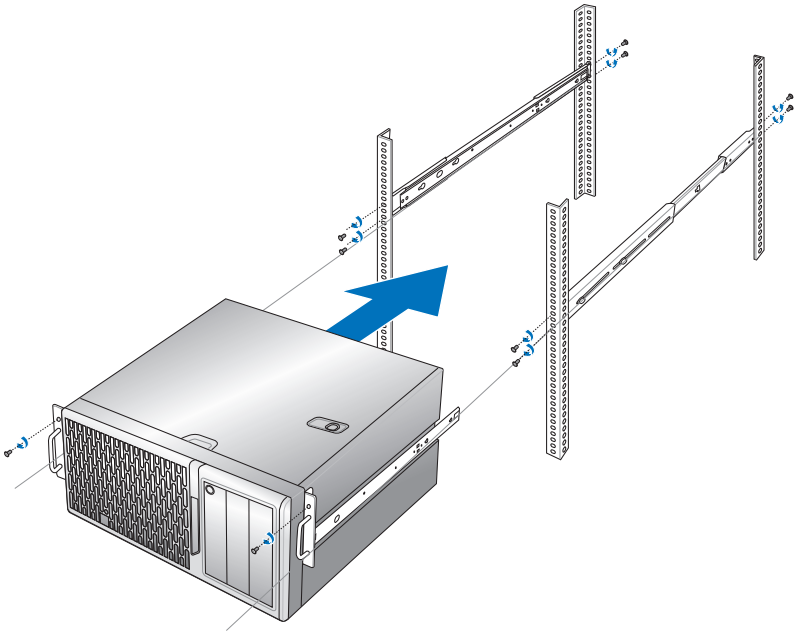


1. Locate the slot that you want to install expansion card on the motherboard.
2. Align the golden fingers of the expansion card with the slot you decided to use.
3. Insert the expansion card into the slot. Ensure that it is completely seated on the slot.
4. Reinstall the expansion card shield.

2.8 Upgrading front system fan



2.9 Rackmount rail kit



Order P/N	Description
90-S00SP0280T	Ball Bearing Rail Kit (Optional)

2.10 OS support list

OS support list
Windows® Server 2008 R2
Windows® Server 2008 R2 Enterprise
Windows® Server 2008 Enterprise 32/64-bit
Windows® 7 Ultimate Service Pack 1 32/64-bit
RedHat® Enterprise Linux Desktop WS 6.0
Redhat® Enterprise Linux AS 5.7/6.2 32/64-bit
SuSe® Linux Enterprise Desktop 11.1 32/64-bit
SuSE® Linux Enterprise Server 11.2 32/64-bit
CentOS 5.7/6.1 32/64-bit
VMWare ESX4.1/ESXi4.1

Order P/N	Description
90-S00SW7140T	Windows® Server 2008 STD 64-bit ENG
90-S00SW7150T	Windows® Server 2008 STD 64-bit TCH